

APPENDIX I

UTILITY CALCULATIONS

***PREPARED BY
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5/9/2005
By: ATN
Chk. By: SRS

DOMESTIC AND WASTE WATER FLOW ANALYSIS

PROJECT: **FOUR POINTS SHERATON**
LOCATION: 1250 Lakeside Drive
Sunnyvale, CA 94085

LOT SIZE: 384,497.53sf. (8.83ac.)

EXISTING LAND USE: Commercial Buildings (Hotel)

EXISTING BUILDINGS:

Hotel	378 rooms
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PROPOSED BUILDINGS:

Hotel	263 rooms
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Residential	251 units (86 one-bedroom units, 103 two-bedroom units, and 62 three-bedroom units)
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Commercial	3,000 square feet
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EXISTING DOMESTIC AND WASTE WATER FLOW

Hotel: 2 beds per room, 1.5 guests per bed, and occupancy during peak season is 100%, therefore, 1,134 guests.

ESTIMATED DOMESTIC AND WASTE WATER FLOW (EWF)

$$\text{EWF} = (55\text{gpd./guest})(1,134 \text{ guests}) = 62,370\text{gpd. (Hotel)}$$

Estimated existing domestic and waste water flow is **62,370gpd.**

PROPOSED DOMESTIC AND WASTE WATER FLOW

Hotel: 2 beds per room, 1.5 guests per bed, and occupancy during peak season is 100%, therefore, 789 guests.

Residential: 1.5 capita per one-bedroom unit, 2.2 capita per two-bedroom unit, and 3.4 capita per three-bedroom unit, therefore, 567 capita. 80gpd/capita

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ESTIMATED DOMESTIC AND WASTE WATER FLOW (EWF)

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$$\begin{aligned} \text{EWF} &= (55\text{gpd./guest})(789 \text{ guests}) = 43,395\text{gpd. (Hotel)} \\ \text{EWF} &= (80\text{gpd./capita})(567\text{capita}) = 45,360\text{gpd. (Residential)} \\ \text{EWF} &= (125\text{gpd./1,000sq.ft.})(3,000\text{sq.ft.}) = 375\text{gpd. (Commercial)} \end{aligned}$$

$$\text{EWF} = 43,395\text{gpd.} + 45,360\text{gpd.} + 375\text{gpd.} = 89,130\text{gpd.}$$

$$\text{EWF} = (89,130\text{gpd.})(2.5) = 222,825\text{gpd.}$$

Estimated proposed domestic and waste water flow is **222,825gpd.**

EXISTING CITY SANITARY SEWER MAIN

Existing city sanitary sewer main is 12-inch diameter at slope of 0.15%. Pipe slope obtained from field survey by BKF Engineers, dated 08/24/2004.

$$Q = (1.49 / n)AR_h^{2/3}S^{1/2}$$

$$A = (0.7854)(1.0\text{ft.})^2 = 0.7854\text{sf.}$$

$$R_h = (0.2500)(1.0\text{ft.}) = 0.2500\text{ft.}$$

$$Q = (1.49/0.013)(0.7854\text{sf.})(0.2500\text{ft.})^{2/3}(0.0015)^{1/2} = 1.38\text{cfs.}$$

City sanitary sewer main capacity is **1.38cfs. (891,917gpd.)**

Existing flow of city sanitary sewer main is not available.

INCREMENTAL DISCHARGE

$$\Delta = [(222,825\text{gpd.} - 62,370\text{gpd.}) / 891,917\text{gpd.}](100) = 18\%$$

The incremental increase in sanitary sewer discharge due to new development is approximately **18%**.